General Fractal Tread Design

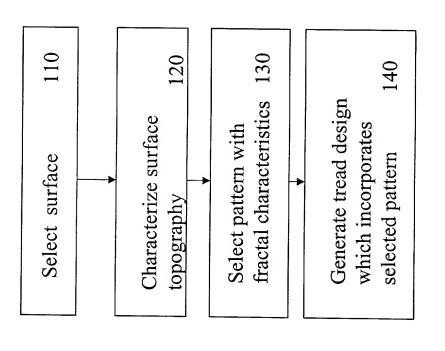
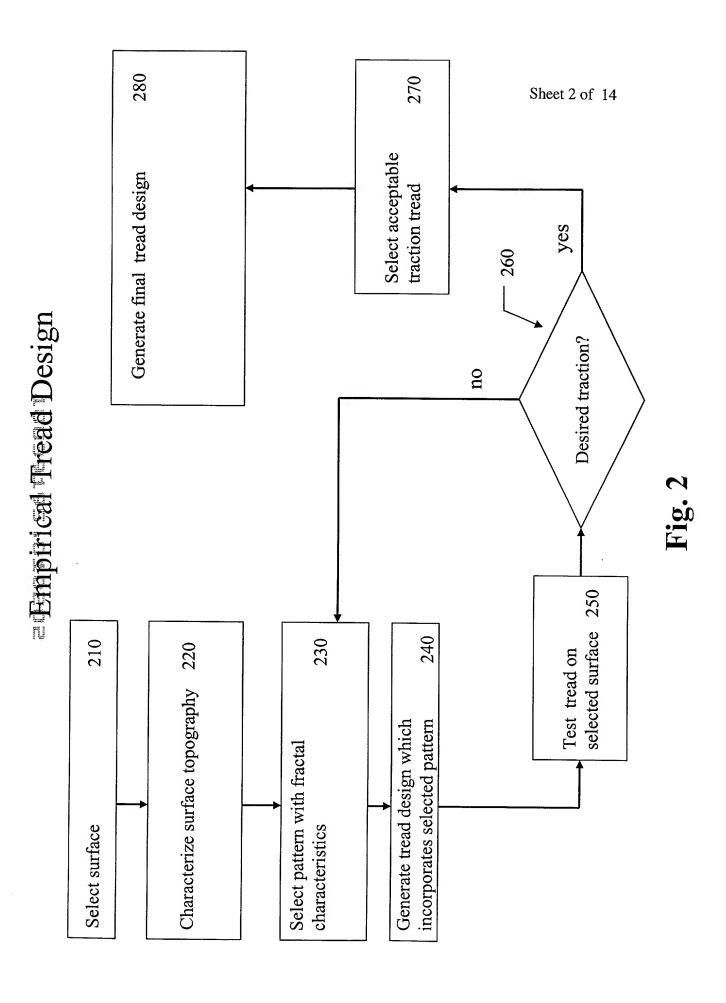


Fig. 1



Empirical Tread Design - substeps of 230

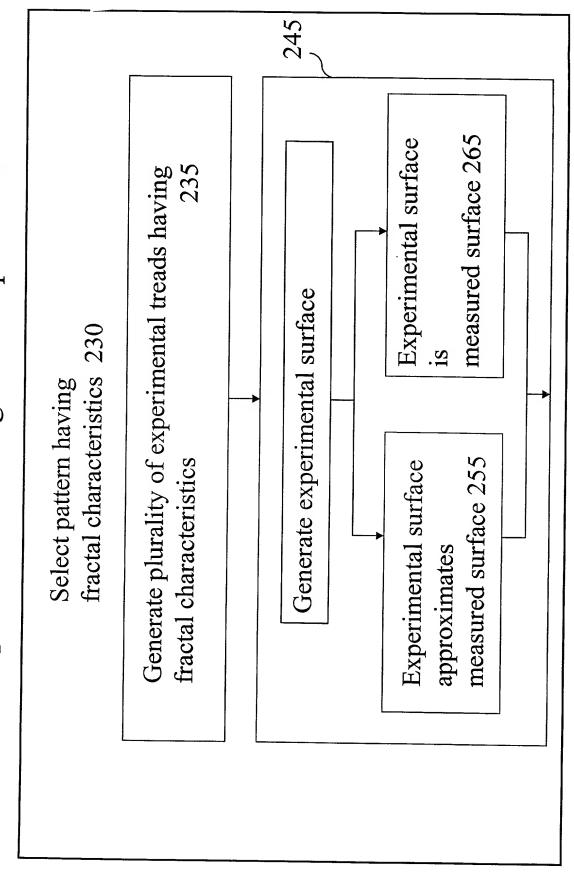


Fig. 2A

Analytical Tread Design

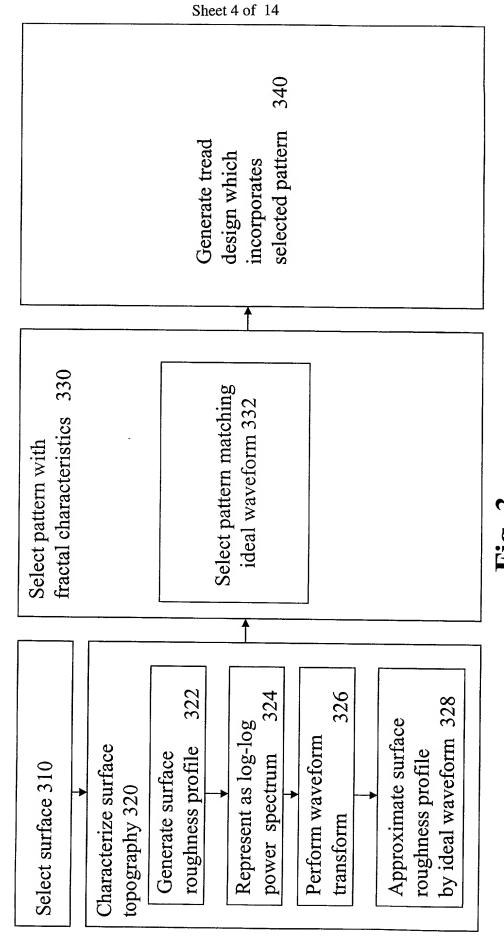


Fig. 3

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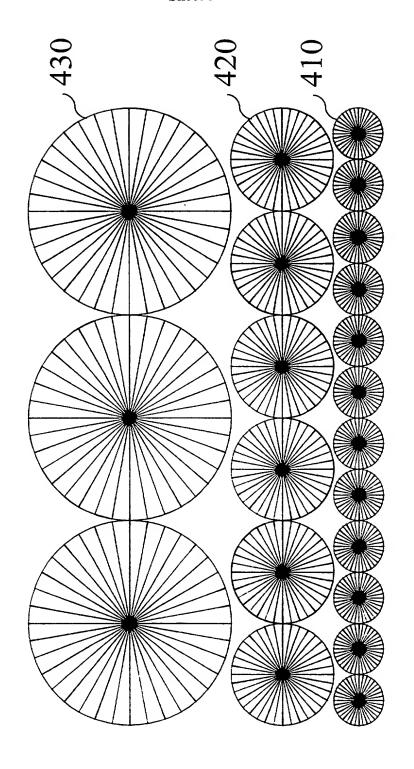
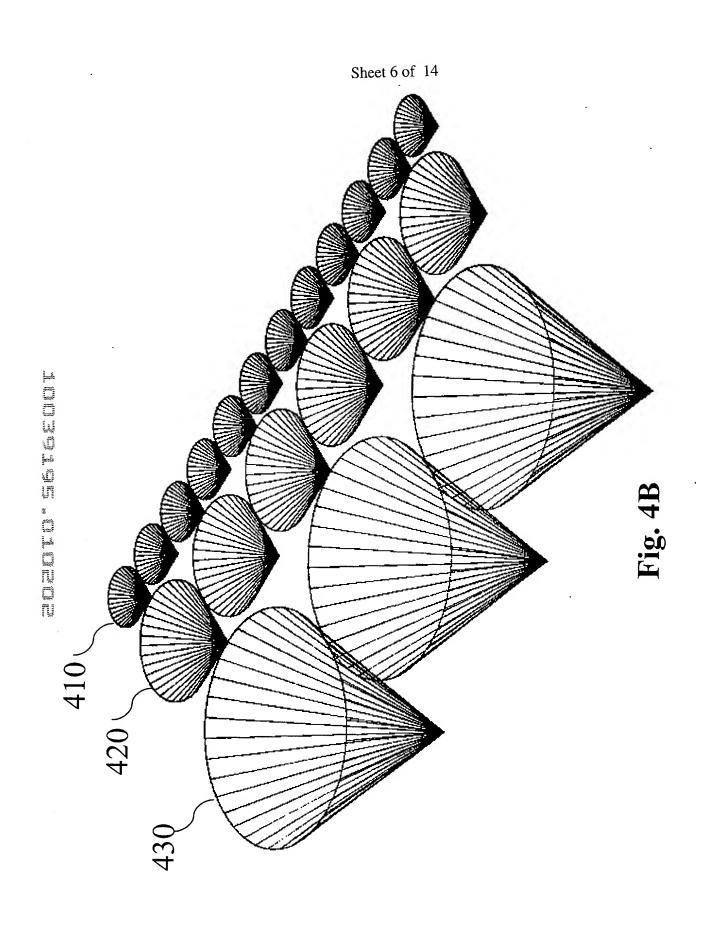


Fig. 4A



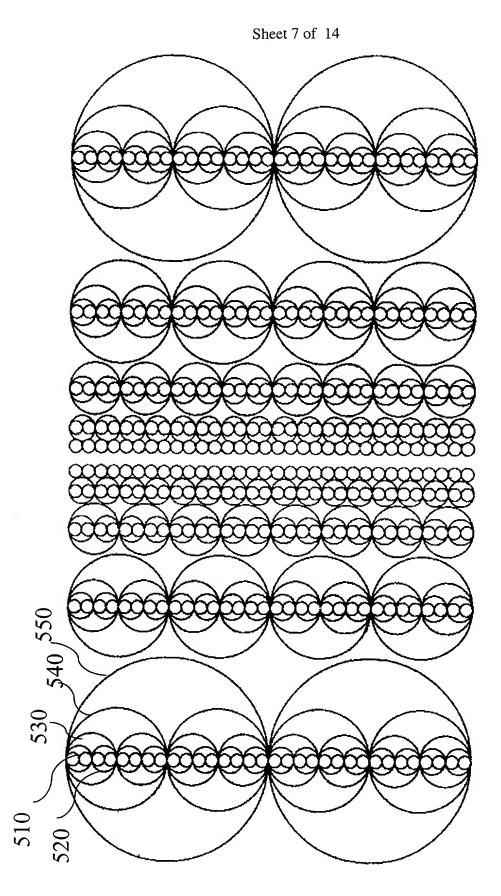
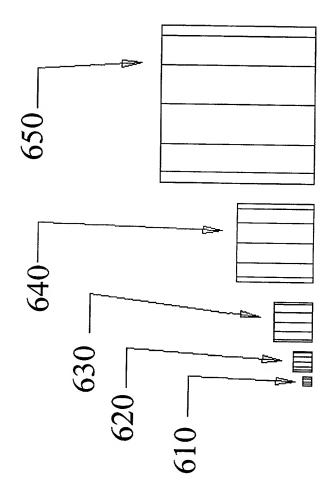
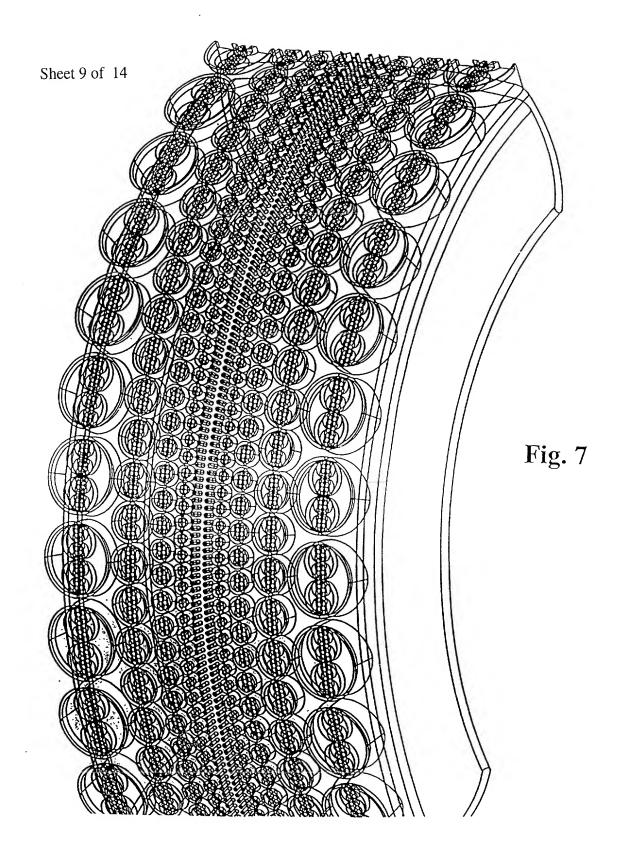


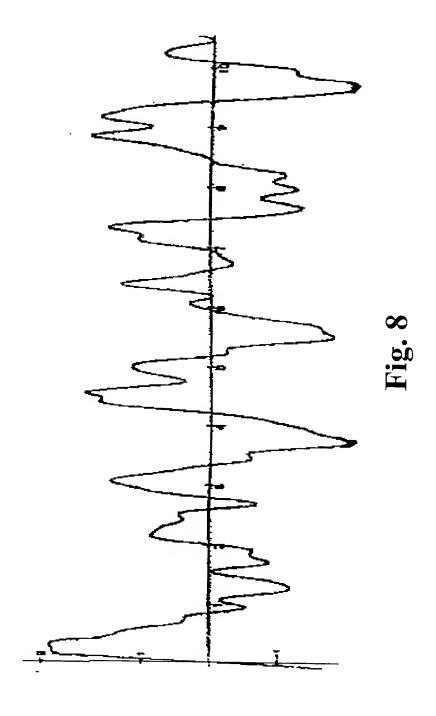
Fig. 5



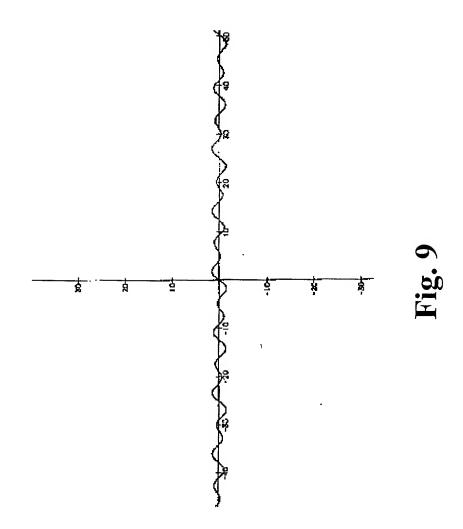
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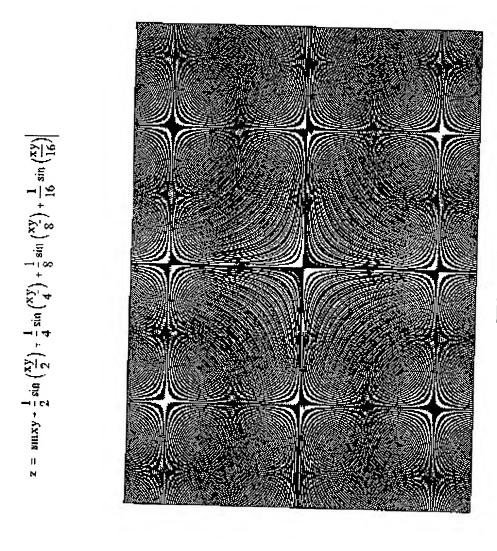
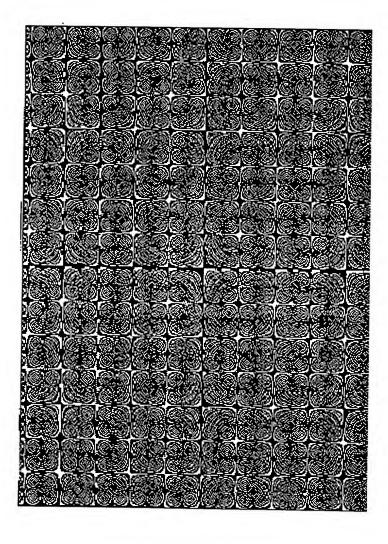


Fig. 10

$$\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{16}\right) + \frac{1}{16}\sin\left(\frac{xy}{16}\right)$$



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$$z = \sin xy + \frac{1}{2}\sin\left(\frac{xy}{2}\right) + \frac{1}{4}\sin\left(\frac{xy}{4}\right) + \frac{1}{8}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right)$$

$$= \sin xy + \frac{1}{2}\sin\left(\frac{xy}{8}\right) + \frac{1}{4}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right)$$

$$= \cos xy + \frac{1}{4}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right)$$

$$= \cos xy + \frac{1}{4}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right)$$

$$= \cos xy + \frac{1}{4}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right) + \frac{1}{16}\sin\left(\frac{xy}{8}\right)$$

$$= \cos xy + \frac{1}{16}\sin\left(\frac{xy}{8}\right) + \frac{1}$$

Fig. 12